

REMARKS

This is intended as a full and complete response to the Office Action dated June 10, 2008, having a shortened statutory period for response set to expire on September 10, 2008. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1 and 2-11 remain pending in the application and are shown above. Claims 2 and 12-29 are cancelled by Applicant. New claims 30-45 are added. Claims 1-11 are rejected by the Examiner. Claim 1 is amended to incorporate all of the elements and limitations previously set forth in claim 2 and to clarify certain aspects of the invention. Claims 3, 6, and 9 are amended to correct matters of form. Reconsideration of the rejected claims is requested for reasons presented below.

Claim Rejections – 35 U.S.C. § 102

Claim 1 is rejected under 35 U.S.C. § 102 (a/e) as being anticipated by *Henderson et al.* (U.S. Patent No. 6,530,157, hereafter '157). Applicant has amended claim 1 to incorporate the elements and limitations previously set forth in claim 2 and to clarify certain aspects of the present invention. Applicant respectfully traverses the rejection with respect to amended claim 1.

The Examiner asserts that the '157 patent teaches a chamber body, a rotatable substrate support positioned in the lower portion of the processing volume, at least three cooperatively rotatable substrate centering posts, wherein the substrate centering posts are stationary while the chuck rotates the substrates, and a nozzle for dispensing fluid.

The '157 patent teaches a device for centering multiple sized workpieces in a processing station. The device includes six rotational shafts 5 surrounding the perimeter of a chamber portion of the processing station. The shafts 5 have a ring bar 3 attached to and extending laterally from each shaft 5. Each ring bar 5 has an alignment pin and a rest pin extending vertically therefrom at an end opposite each shaft 5. The '157 patent fails to

teach, show, or suggest cooperatively rotatable centering posts comprising a vertical shaft member rotatable about its central axis, a cap member positioned on a distal terminating end of the shaft member, a raised central substrate support portion positioned at a rotational center of the cap member, wherein the rotational center of the cap member is substantially aligned with the central axis of the shaft member, and a substrate centering member extending upwardly from the cap member and being positioned away from the rotational center of the cap member.

Therefore, the '157 patent fails to teach, show, or suggest a substrate bevel cleaning chamber comprising a chamber body defining a processing volume, a rotatable substrate support member positioned in a lower portion of the processing volume, at least three cooperatively rotatable substrate centering posts radially positioned around the rotatable substrate support member such that the posts remain stationary during rotation of the substrate support member, wherein each of the cooperatively rotatable centering posts comprise a vertical shaft member rotatable about its central axis, a cap member positioned on a distal terminating end of the shaft member, a raised central substrate support portion positioned at a rotational center of the cap member, wherein the rotational center of the cap member is substantially aligned with the central axis of the shaft member, and a substrate centering member extending upwardly from the cap member and being positioned away from the rotational center of the cap member, and a fluid dispensing nozzle movably positioned to dispense a cleaning fluid onto the top surface of a substrate positioned on the substrate support member as recited in claim 1 and claims 3-11 dependent thereon. Applicant requests withdrawal of the rejection.

Claim Rejections – 35 U.S.C. § 103

Claims 2-5 and 9-10 are rejected under 35 U.S.C. § 103 as being unpatentable over *Henderson* ('157) as applied to claim 1 above, further in view of *Anderson et al.* (U.S. Patent No. 5,851,041, hereafter '041) and *Adachi et al.* (U.S. Publ. No. 2002/0134512, hereafter '512) and *Shinabara* (U.S. Patent No. 4,788,994, hereafter '994). Applicant has canceled claim 2 and amended claim 1 to incorporate the elements and limitations

previously set forth in claim 2 and to clarify certain aspects of the invention. Applicant respectfully traverses the rejection with respect to amended claim 1 and claims 3-5 and 9-10 dependent thereon.

The Examiner asserts that the '157 patent teaches that the centering posts are separate from the rotatable substrate support. The Examiner admits that '157 does not teach that the centering posts comprise a vertical shaft member, a cap member with a raised portion of the cap, and a raised centering member extending from the cap member and positioned away from the rotational center of the cap member. The Examiner asserts that the '041 patent teaches a substrate centering post with a vertical positioning shaft and a cap member for terminating the end of the shaft. The Examiner further admits that neither the '157 patent nor the '041 patent teach that the cap has a raised central portion substrate support portion. The Examiner asserts that the '512 publication teaches a substrate support cap with a raised center portion for centering the substrate. The Examiner further admits that neither the '157 patent, the '041 patent, nor the '512 publication teach an upwardly extending member that is off-center. The Examiner asserts that the '994 publication teaches an extending member from a cap is off-centered for positioning a substrate.

The '157 patent teaches a device for centering multiple sized workpieces in a processing station. The device includes six rotational shafts 5 surrounding the perimeter of a chamber portion of the processing station. The shafts 5 have a ring bar 3 attached to and extending laterally from each shaft 5. Each ring bar 5 has an alignment pin and a rest pin extending vertically therefrom at an end opposite each shaft 5. The '157 patent fails to teach, show, or suggest a vertical shaft member rotatable about its central axis, a cap member positioned on a distal terminating end of the shaft member, and a raised central substrate support portion positioned at a rotational center of the cap member, wherein the rotational center of the cap member is substantially aligned with the central axis of the shaft member.

The '041 patent teaches a wafer holder 200 mounted on a spindle assembly 201. The wafer holder 200 includes four L-shaped members 215, each having a wafer holding bumper 216 on the top thereof. Each of the L-shaped members 215 is further coupled to a rotatable pin 218. The '041 patent fails to teach, show, or suggest a vertical shaft member rotatable about its central axis, a cap member positioned on a distal terminating end of the shaft member, and a raised central substrate support portion positioned at a rotational center of the cap member, wherein the rotational center of the cap member is substantially aligned with the central axis of the shaft member.

The '512 publication teaches a substrate processing system having a rotary base 11 with a plurality of pins 112 arranged on a plate-type turntable 111 opposed to a lower surface of a substrate along the outer periphery of the substrate. Each pin 112 has a support part 1122 for supporting the substrate and a contact part 1121 extending vertically from the center of the support part 1122 for contacting the outer edge of the substrate during rotation of the substrate. The '512 publication fails to teach, show, or suggest a vertical shaft member rotatable about its central axis, a cap member positioned on a distal terminating end of the shaft member, and a raised central substrate support portion positioned at a rotational center of the cap member, wherein the rotational center of the cap member is substantially aligned with the central axis of the shaft member.

The '994 publication teaches a wafer holding mechanism including a rotary plate 70 with six radially and horizontally projecting arms 70a, on whose ends are provided six chuck pieces 73, respectively. An upper part 73a of the chuck piece 73 is rotatable with respect to the projecting arm 70a. A swinging arm 76 is attached to a lower end of the upper part 73a for rotating the upper part 73a. A chuck portion 77 is attached to an upper end of the upper part 73a offset from the rotary axis of the upper part 73a. The '994 publication fails to teach, show, or suggest a vertical shaft member rotatable about its central axis, a cap member positioned on a distal terminating end of the shaft member, and a raised central substrate support portion positioned at a rotational center of the cap member, wherein the rotational center of the cap member is substantially aligned with the central axis of the shaft member.

The Examiner's proposed combination of the '157 patent, the '041 patent, the '512 publication, and the '994 publication fails to teach, show, or suggest cooperatively rotatable centering posts comprising a vertical shaft member rotatable about its central axis, a cap member positioned on a distal terminating end of the shaft member, a raised central substrate support portion positioned at a rotational center of the cap member, wherein the rotational center of the cap member is substantially aligned with the central axis of the shaft member, and a substrate centering member extending upwardly from the cap member and being positioned away from the rotational center of the cap member.

Therefore, the '157 patent, the '041 patent, the '512 publication, and the '994 publication, alone or in combination, fail to teach, show, or suggest a substrate bevel cleaning chamber comprising a chamber body defining a processing volume, a rotatable substrate support member positioned in a lower portion of the processing volume, at least three cooperatively rotatable substrate centering posts radially positioned around the rotatable substrate support member such that the posts remain stationary during rotation of the substrate support member, wherein each of the cooperatively rotatable centering posts comprise a vertical shaft member rotatable about its central axis, a cap member positioned on a distal terminating end of the shaft member, a raised central substrate support portion positioned at a rotational center of the cap member, wherein the rotational center of the cap member is substantially aligned with the central axis of the shaft member, and a substrate centering member extending upwardly from the cap member and being positioned away from the rotational center of the cap member, and a fluid dispensing nozzle movably positioned to dispense a cleaning fluid onto the top surface of a substrate positioned on the substrate support member as recited in claim 1 and claims 3-11 dependent thereon. Applicant requests withdrawal of the rejection.

Claims 6-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Henderson* ('157) as applied to claim 1 above, further in view of *Mayer et al.* (U.S. Patent No. 6,537,416, hereafter '416). Applicant respectfully traverses the rejection.

The deficiencies of the '157 patent is discussed above with respect to amended base claim 1. The '416 patent teaches both front side and back side nozzles for etchant and/or rinse solution. However, the '416 patent does not remedy the deficiencies of the '157 patent. Applicant respectfully requests withdrawal of the rejection.

Claim 11 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Henderson* ('157) as applied to claim 1 above, further in view of *Kurihara et al* (U.S. Patent No. 5,820,685, hereafter, '685). Applicant respectfully traverses the rejection.

The deficiencies of the '157 patent is discussed above with respect to amended base claim 1. The '685 patent teaches vertically movable lift pins. The '695 patent does not remedy the deficiencies of the '157 patent. Applicant respectfully requests withdrawal of the rejection.

Regarding new claim 30, the cited references, alone or in combination fail to teach, show, or suggest at least cooperatively rotatable centering posts comprising a vertical shaft member rotatable about its central axis, a cap member positioned on a distal terminating end of the shaft member, a raised central substrate support portion positioned at a rotational center of the cap member, wherein the rotational center of the cap member is substantially aligned with the central axis of the shaft member, and a substrate centering member extending upwardly from the cap member and being positioned away from the rotational center of the cap member, wherein the simultaneous rotation of each vertical shaft member about its central axis centers a substrate disposed on the raised central substrate support portion of each of the cap members over the rotatable substrate support member.

Therefore, the cited references, alone or in combination, fail to teach, show, or suggest a substrate bevel cleaning chamber comprising a chamber body defining a processing volume, a rotatable substrate support member positioned in a lower portion of the processing volume, at least three cooperatively rotatable substrate centering posts radially positioned around the rotatable substrate support member such that the posts

remain stationary during rotation of the substrate support member, wherein each of the cooperatively rotatable centering posts comprise a vertical shaft member rotatable about its central axis, a cap member positioned on a distal terminating end of the shaft member, a raised central substrate support portion positioned at a rotational center of the cap member, wherein the rotational center of the cap member is substantially aligned with the central axis of the shaft member, and a substrate centering member extending upwardly from the cap member and being positioned away from the rotational center of the cap member, wherein the simultaneous rotation of each vertical shaft member about its central axis centers a substrate disposed on the raised central substrate support portion of each of the cap members over the rotatable substrate support member, and a fluid dispensing nozzle movably positioned to dispense a cleaning fluid onto the top surface of a substrate positioned on the substrate support member as recited in new claim 30 and claims 31-37 dependent thereon. Applicant respectfully requests allowance of claims 30-37.

Regarding new claim 38, the cited references, alone or in combination, fail to teach, show, or suggest at least cooperatively rotatable centering posts comprising a vertical shaft member rotatable about its central axis, a cap member positioned on a distal terminating end of the shaft member, a sleeve member engaged with the vertical shaft member and the cap member to form a fluid seal, a raised central substrate support portion positioned at a rotational center of the cap member, wherein the rotational center of the cap member is substantially aligned with the central axis of the shaft member, and a substrate centering member extending upwardly from the cap member and being positioned away from the rotational center of the cap member.

Therefore, the cited references, alone or in combination, fail to teach, show, or suggest a chamber body defining a processing volume, a rotatable substrate support member positioned in a lower portion of the processing volume, at least three cooperatively rotatable substrate centering posts radially positioned around the rotatable substrate support member such that the posts remain stationary during rotation of the substrate support member, wherein each of the cooperatively rotatable centering posts comprise a vertical shaft member rotatable about its central axis, a cap member positioned

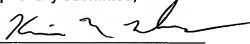
on a distal terminating end of the shaft member, a sleeve member engaged with the vertical shaft member and the cap member to form a fluid seal, a raised central substrate support portion positioned at a rotational center of the cap member, wherein the rotational center of the cap member is substantially aligned with the central axis of the shaft member, and a substrate centering member extending upwardly from the cap member and being positioned away from the rotational center of the cap member, and a fluid dispensing nozzle movably positioned to dispense a cleaning fluid onto the top surface of a substrate positioned on the substrate support member.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the office action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this Office Action.

Having addressed all issues set out in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,

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